

ABBREVIATIONS

ACCU	AIR COOLED CONDENSING UNIT
ATC	AUTOMATIC TEMPERATURE CONTROLS
EF	EXHAUST FAN
EUH	ELECTRIC UNIT HEATER
EW	ELECTRIC WALL HEATER
FD	FIRE DAMPER
R	RETURN AIR DEVICE
RL	REFRIGERANT LIQUID LINE
RS	REFRIGERANT SUCTION LINE
S	SUPPLY AIR DEVICE
WMS	WIRE MESH SCREEN

HVAC LEGEND

	VOLUME DAMPER
	SUPPLY DUCT UP
	SUPPLY DUCT DOWN
	RETURN OR EXHAUST DUCT UP
	RETURN OR EXHAUST DUCT DOWN
	ACOUSTICALLY LINED DUCT
	THERMOSTAT
	SUPPLY DIFFUSER
	RETURN OR EXHAUST DIFFUSER
	FLEXIBLE DUCT - LIMITED TO 5' MAX
	DUCT SMOKE DETECTOR (FURNISHED AND WIRED UNDER DIV 16)
	MOTOR OPERATED DAMPER
	BRANCH-TOP CONNECTION
	BRANCH-BOTTOM CONNECTION
	CAP ON END OF PIPE
	TEE
	CD CONDENSATE DRAIN PIPING
	CO CLEANOUT

GAS FIRED AC UNIT SCHEDULE

UNIT NO.	AC-1
AREA SERVED	OPERATIONS OFFICE
MANUFACTURER	CARRIER
MODEL NO.	58MVP060-14
SUPPLY AIR FAN DATA	
TOTAL AIR FLOW-CFM	1200
OUTSIDE AIR FLOW-CFM	160
EXT. S.P.-IN. W.G.	0.6
HP	0.5
DX COIL DATA	
TOTAL COOLING - TONS	3.5
GAS FURNACE CAPACITY	
INPUT	60/39
OUTPUT	56/36
ELECTRICAL DATA	
V/PH/HZ	115/1/60
FLA	7.7
REMARKS (SEE BELOW)	SEE BELOW
NOTES:	
VARIABLE SPEED FAN, ECM MOTOR TWO STAGE GAS HEAT DIRECT VENT CONDENSING TYPE GAS FURNACE PROVIDE FLEX CONNECTIONS ON INLETS AND OUTLETS PROVIDE CASED DX COOLING COIL PROVIDE CONCENTRIC VENT KIT	

GENERAL NOTES:

- INTENT: THE INTENT OF THE DRAWINGS IS TO PROVIDE THAT THE WORK AND ALL PARTS THEREOF SHALL BE, WHEN FULLY COMPLETED, SUITABLE IN EVERY WAY FOR THE PURPOSES FOR WHICH IT IS INTENDED. PROVIDE ALL MATERIALS AND LABOR NECESSARY TO MAKE THE SYSTEM FULLY OPERABLE AND IN COMPLIANCE WITH ALL APPLICABLE CODES.
- DRAWINGS: THE DRAWINGS ARE GENERALLY DIAGRAMMATIC AND INDICATIVE OF THE WORK TO BE PERFORMED AND SHALL BE FOLLOWED AS CLOSELY AS POSSIBLE. EXACT LOCATIONS OF NEW AND EXISTING DUCTWORK, PIPING, ETC. SHALL BE DETERMINED AT THE SITE TO SUIT ACTUAL SITE CONDITIONS.
- COORDINATION: COORDINATE ALL WORK AND WORK SCHEDULES WITH THAT OF OTHER TRADES AFFECTED BY THE ENTIRE SCOPE OF THE PROJECT SO THAT ALL WORK MAY BE INSTALLED IN THE MOST DIRECT AND WORKMANLIKE MANNER AND SO THAT INTERFERENCE WITH DUCTWORK, PIPING, EQUIPMENT, ELECTRICAL, ARCHITECTURAL AND STRUCTURAL COMPONENTS AND OTHER WORK IS AVOIDED.
- INSTALLATION SHALL PERMIT ACCESSIBILITY FOR SERVICE OR REPLACEMENT.
- PROVIDE 3/4" VENTS FOR ALL HIGH POINTS AND 3/4" DRAINS FOR ALL LOW POINTS IN THE HOT AND CHILLED WATER PIPING SYSTEMS.
- EXCEPT WHERE SPECIFICALLY INDICATED OTHERWISE, ALL NEW PIPING AND DUCTWORK IN FINISHED AREAS SHALL BE CONCEALED BEHIND WALLS, WITHIN SHAFTS OR ABOVE CEILINGS.
- REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR ACTUAL REGISTER, DIFFUSER AND GRILL LOCATIONS.

AIR DISTRIBUTION DEVICE SCHEDULE

UNIT NO.	MANUFACTURER	MODEL	NECK SIZE	CFM RANGE	DESCRIPTION
S1	METAL*AIRE	5500S-6	6x6/6"ø	0-125 CFM	24x24 LAY IN, PANEL TYPE, 6x6 W/ 6"ø NECK
S2	METAL*AIRE	5500S-6	9x9/8"ø	126-280 CFM	24x24 LAY IN, PANEL TYPE, 9x9 W/ 8"ø NECK
R1	METAL*AIRE	RH	22x22/16"ø	---	24x24 LOUVERED RETURN GRILL FOR TBAR CLG. PROVIDE ROUND NECK ADAPTER
R2	METAL*AIRE	RH	22x12/8"ø	---	24x12 LOUVERED RETURN GRILL FOR TBAR CLG. PROVIDE ROUND NECK ADAPTER
R3	METAL*AIRE	RH	22x12	---	24x12 LOUVERED RETURN GRILL FOR TBAR CLG.
R4	METAL*AIRE	HDRH	48x24	---	HEAVY DUTY EXTRUDED ALUMINUM LOUVERED RETURN REGISTER W/OBD
L1	GREENHECK	ESD-403	SEE PLANS	---	DRAINABLE BLADE EXTRUDED ALUMINUM LOUVER WITH BIRDSCREEN. PROVIDE BAKED ENAMEL FINISH - COLOR AS SELECTED BY ARCHITECT.
NOTES:					
DUCT RUNOUT SIZES SHALL MATCH INDICATED NECK SIZES. PROVIDE BAKED ENAMEL, WHITE FINISH.					
PROVIDE BORDER TYPES SUITABLE FOR FINISHES INDICATED ON ARCHITECTURAL DRAWINGS.					
				UNIT NO. S1-200	
				CFM	
				S = SUPPLY	
				R = RETURN	

EXHAUST FAN SCHEDULE

UNIT NO.	MANUFACT.	MODEL	AREA SERVED	AIR FLOW CFM	SP IN W.G.	MOTOR POWER	ELECTRIC VOLT	PH	HZ	MAX NOISE SONES	REMARKS (SEE BELOW)
EF-1	PANASONIC	FV-11VQ2	BATHROOMS	90	0.25	26 WATTS	115	1	60	1.5	①
EF-2A,B	GREENHECK	SBE-2L48-75	GARAGE	27,000	0.5	7.5 HP	480	3	60	29	②
EF-3	GREENHECK	SP-A1410	ELECTRIC ROOM	1200	0.4	786 WATTS	115	1	60	11.5	③
NOTES:											
① CEILING EXHAUST FAN WITH INTEGRAL GRILL AND BACKDRAFT DAMPER.											
② SIDE WALL, BELT DRIVE PROPELLER EXHAUST FAN WITH WALL HOUSING KIT AND OSHA GUARD. CONTROL, BY CO MONITOR.											
③ DIRECT DRIVE CEILING EXHAUST FAN WITH ALUMINUM GRILL, OUTLET DUCT COLLAR AND BACKDRAFT DAMPER.											

AIR-COOLED CONDENSING UNIT SCHEDULE

UNIT NO.	MANUF.	MODEL	TONS	COMPRESSOR NO.	RLA-EA	LRA-EA	COND. FANS NO.	FLA	VOLTS	PH	MCA	MAX FUSE	MAX SOUND dBA	MIN SEER	REMARKS dBA
ACCU-1	CARRIER	38TRA036	3	1	20.0	104.0	1	1.1	208-230	1	23.4	40	73	12.5	①
NOTES:															
① PROVIDE FILTER DRYER, 7 DAY PROGRAMMABLE THERMOSTAT CRANKCASE HEATER, CYCLE PROTECTOR, LOW AMBIENT CONTROL, WINTER START CONTROL, COMPRESSOR START ASSIST, EVAPORATOR FREEZE THERMOSTAT, LOW AMBIENT PRESSURE SWITCH, LOW PRESSURE SWITCH															

ELECTRIC HEATER SCHEDULE

UNIT NO.	MANUFACT.	MODEL	OUTPUT KW	ELECTRIC VOLT	PH	REMARKS
EUH-1	QMARK	MUH-07-8	7.5	480	3	① HORIZONTAL UNIT HEATER
EUH-2	QMARK	MUH-10-8	10	480	3	① HORIZONTAL UNIT HEATER
EUH-3	QMARK	MUH-15-8	15	480	3	① HORIZONTAL UNIT HEATER
EW-1	QMARK	AWH-4407	2	277	1	② WALL HEATER, FIELD CONVERT TO 2 KW
EW-2	QMARK	AWH-4407	4	277	1	② WALL HEATER
NOTES:						
① HORIZONTAL UNIT HEATER WITH INTEGRAL THERMOSTAT WITH 45°-75° RANGE.						
② HEAVY DUTY WALL HEATER WITH 16 GAUGE GRILL AND INTEGRAL THERMOSTAT. PROVIDE RECESSED MOUNTING WHERE FIELD CONDITIONS ALLOW. PROVIDE SURFACE MOUNTING FRAME AT LOCATIONS REQUIRING SURFACE MOUNTING. REFER TO ARCHITECTURAL DRAWINGS FOR WALL TYPES.						

AUTOMATIC TEMPERATURE CONTROLS (ATC)

PROVIDE A COMPLETE ELECTRIC/ELECTRONIC ATC SYSTEM INCLUDING ALL WIRING AND CONTROL COMPONENTS NECESSARY TO PROVIDE THE SEQUENCE OF OPERATIONS INDICATED BELOW.

AC UNITS AC-1 AND ACCU-1

UNITS SHALL BE CONTROLLED BY SEVEN DAY, 24 HOUR PROGRAMMABLE THERMOSTATS WITH FAN-ON-AUTO AND HEAT-OFF-COOL SWITCHING SUB-BASES. AC UNIT SUPPLY FANS SHALL OPERATE CONTINUOUSLY. WITH THE UNIT SET TO HEAT, GAS FIRED HEAT SHALL OPERATE WHENEVER TEMPERATURE FALLS BELOW SETPOINT (72°F, DAY TIME, 60°F NIGHT TIME, ADJUSTABLE). WITH THE UNIT SET TO COOL, THE RESPECTIVE AIR COOLED CONDENSING UNIT SHALL OPERATE TO MAINTAIN THE SPACE AT SETPOINT (78°F, ADJUSTABLE).

EXHAUST FANS EF-1A,B

EXHAUST FANS EF-1A,B SHALL BE CONTROLLED BY A SEVEN DAY, 24 HOUR PROGRAMMABLE TIME CLOCK. THE FANS SHALL OPERATE CONTINUOUSLY DURING THE OCCUPIED TIME PERIOD AND BE OFF DURING THE UNOCCUPIED TIME PERIOD.

EXHAUST FANS EF-2A,B

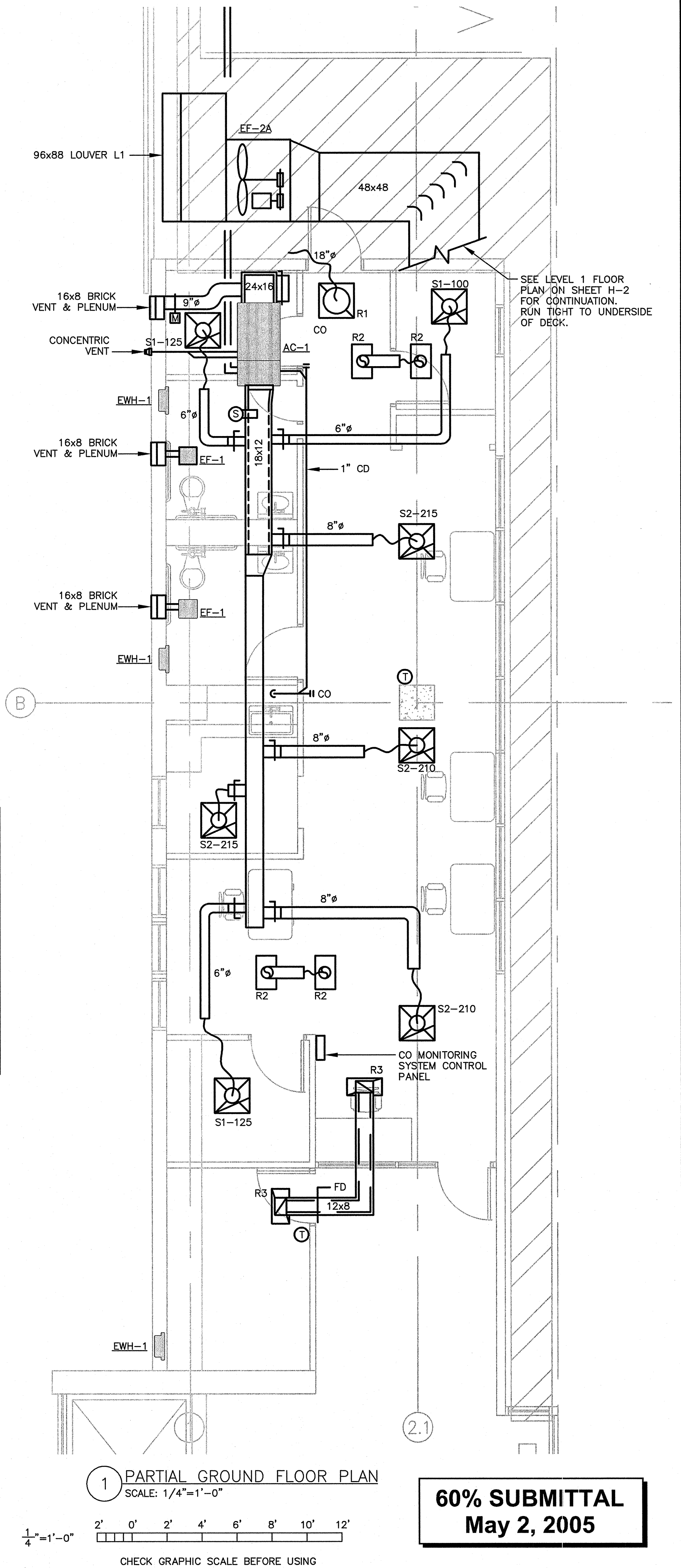
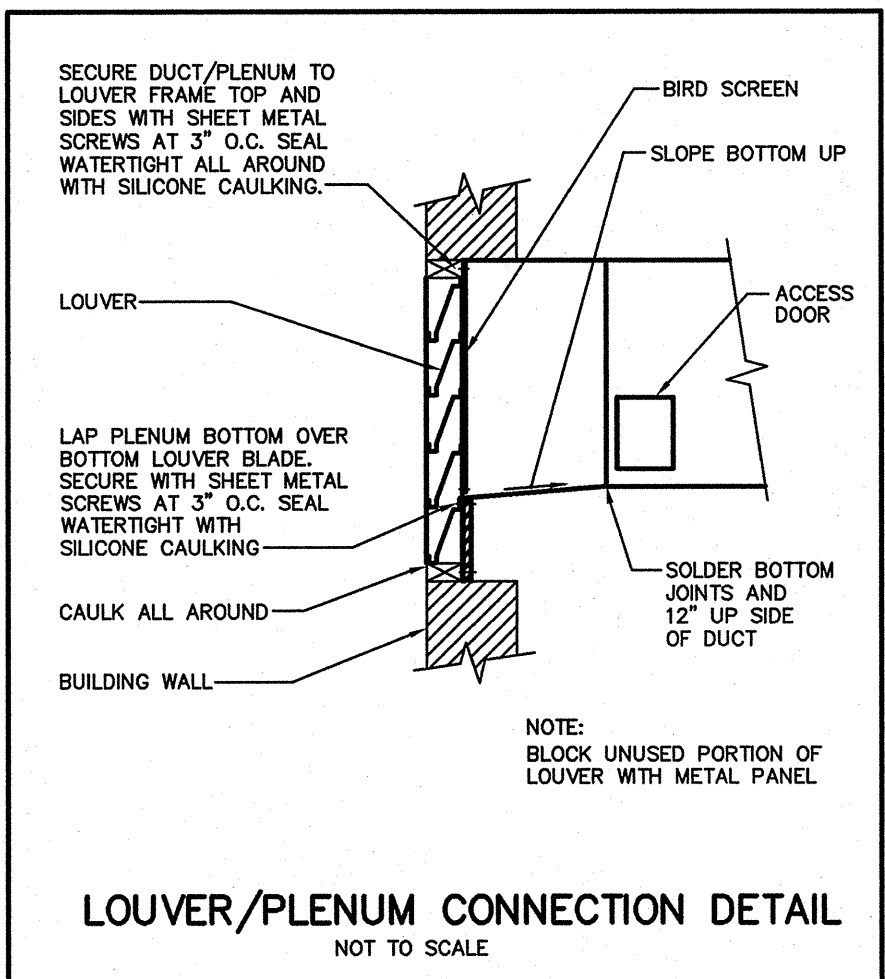
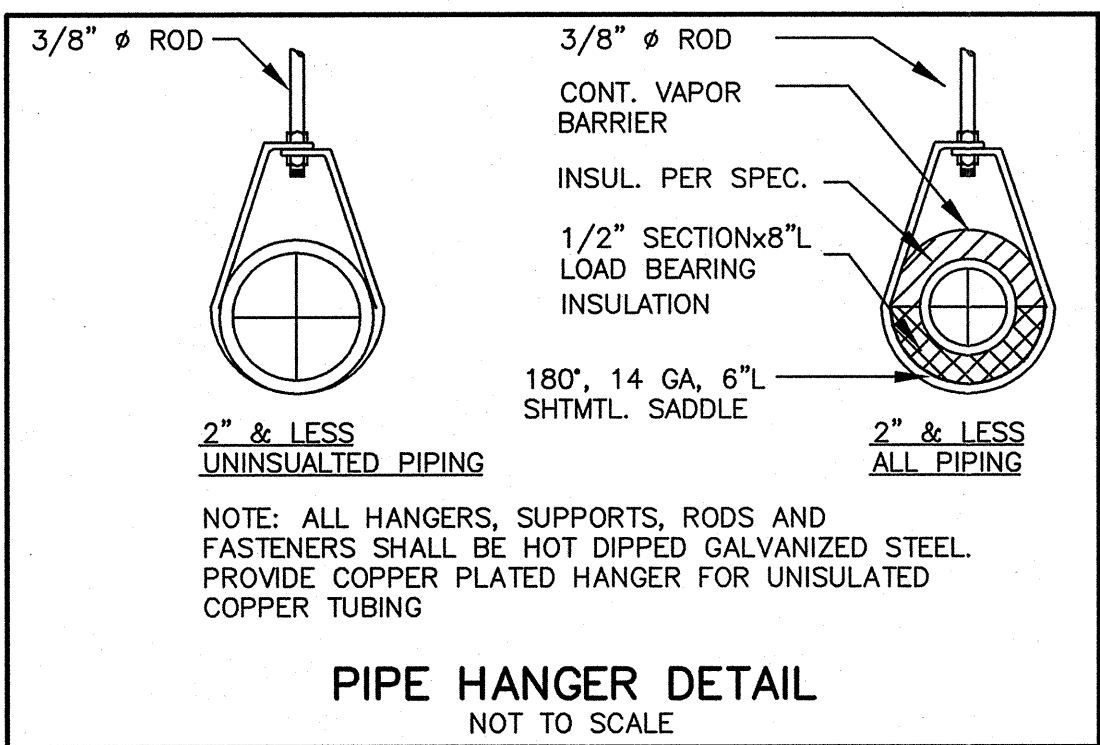
EXHAUST FANS EF-2A,B SHALL BE CONTROLLED INDIVIDUAL HAND-OFF-AUTOMATIC SWITCHES AND CARBON MONOXIDE CONTROL PANEL WITH FOUR REMOTE CO DETECTORS. WHEN CARBON MONOXIDE SENSORS SENSE CO LEVELS ABOVE FIRST STAGE SETPOINT, EXHAUST FANS EF-2A&B SHALL START. UPON A FURTHER RISE IN CO LEVELS TO SECOND STAGE SETPOINT, AN ALARM SHALL BE SOUNDED AT THE CONTROL PANEL. THE CONTROL PANEL SHALL BE LOCATED IN THE OPERATIONS OFFICE.

EXHAUST FANS EF-3

EXHAUST FAN EF-3 SHALL BE CONTROLLED BY A LOCAL THERMOSTAT. THE FAN SHALL START UPON A RISE IN TEMPERATURE ABOVE SETPOINT (80°F, ADJUSTABLE) AND STOP UPON A FALL IN TEMPERATURE BELOW SETPOINT. A MOTOR OPERATED DAMPER ON THE OUTSIDE AIR INTAKE TO THE ROOM SHALL OPEN WHEN THE FAN STARTS AND CLOSE WHEN THE FAN STOPS.

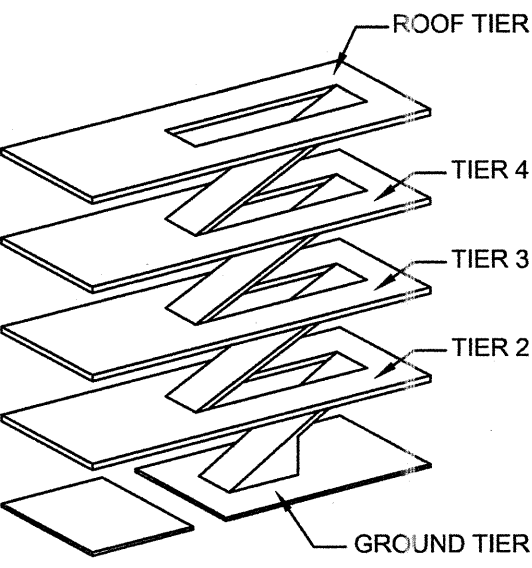
ELECTRIC HEATERS

ELECTRIC UNIT HEATERS AND WALL HEATERS SHALL BE CONTROLLED BY INTEGRAL THERMOSTATS PROVIDED BY HEATER MANUFACTURERS.



60% SUBMITTAL
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JAM Parking
Structure
101-115 Middlesex St.
City of Lowell, MA



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